

Waste Site	Description
A-Area Burning/Rubble Pits, 731-A, -1A and A-Area Rubble Pit, 731-2A	The A-Area Burning/Rubble Pits and Rubble Pit (731-A and -1A & A-Area Rubble Pit (731-2A)) are located approximately 1.5 miles south of M Area and just west of Roads D and C-1. An open ditch and drain are located east and north, respectively, of the pits. Facility documentation indicates that the A-Area Burning/Rubble Pits were constructed in 1951. Each pit is approximately 22-feet wide by 9- to 10-feet deep by 25-feet long. Waste includes paper, plastics, wood, rubble, rags, cardboard, oil, degreasers, and drummed solvents. Wastes were usually burned on a monthly basis until October 1973 when burning was discontinued at SRS. Pit 731-2A was used only as a rubble pit. After burning was discontinued, Pits 731-A and 731-1A were also converted to rubble pits and used for disposal of paper, wood, concrete, empty galvanized steel barrels, and cans. The pits reached capacity in 1978 and were taken out of service and covered with soil to grade level. Soil-gas surveys conducted at the A-Area Burning/Rubble Pits in 1988 and 1991 indicated the presence of chlorinated solvents.
A-Area Miscellaneous Rubble Pile, 731-6A	The A-Area Miscellaneous Rubble Pile is located in the northwest portion of SRS. The unit is approximately 6 acres in size. The pile was used for bulk solid waste disposal during construction of SRS. Although there is no record of the dates of operation of the pile, it may have received waste from the time of original plant construction in the 1950s to the early 1970s. The waste in the area is suspected to consist of construction rubble. Visual surveys have noted the presence of concrete, wood, asphalt, vegetation, tree stumps, scrap metal, and old metal containers. The constituents of concern are lead, polychlorinated biphenyls, polyaromatic hydrocarbons (PAHs), arsenic, tetrachloroethylene, and trichloroethylene.
Arsenic Treated Wood Storage Area, NBN	The Arsenic Treated Wood Storage Treated Area (NBN) Site Evaluation Area (SEA) is in the central portion of the SRS, on the eastern edge of N-Area. This SEA is in a relatively flat area that serves as a material storage yard and slopes gradually to the northeast. The material storage yard is paved with gravel and contains no vegetation. The SEA is approximately 120 feet long by 100 feet wide and contains no stained soil or other visual indication of contamination. The SEA is within the Fourmile Branch Watershed. There is a small wetland area associated with an unnamed tributary of Fourmile Branch approximately 250 feet north of the SEA. The history of the SEA is unknown, but is believed to have been originally used as an unpaved parking lot during construction of N-Area in the early 1950s. Aerial photos suggest that the area was re-graded and put into use as a material storage yard in approximately 1986. The wood stored at the SEA had been pressure-treated using a process which impregnates chromium copper arsenate (CCA) into the wood to resist destruction by insects and fungus. Several tons of wood was stored there, resting on steel supports to avoid contact with the ground. During August 1997, the wood was moved approximately 300 feet southeast of its previous location during a reorganization of the lay down yard. Since that time, all wood has been removed from the yard. The major constituents of concern (COCs) related to

	this SEA are arsenic, chromium, and copper.
C-Area Burning/Rubble Pit, 131-C	The C-Area BRP (131-C) is located west of C Area and north of Road A-7 on a ridge between two tributaries of Fourmile Creek. Constructed in 1951, the C-Area BRP was a shallow, unlined pit 350-feet long by 25-feet wide by 10-feet deep. Beginning in 1951, combustible wastes were accumulated in the unlined pit and were periodically burned. During operation, the C-Area BRP received organic materials of unknown use and origin, paper, plastics, and rubber materials. Waste burning stopped in 1973. Afterward, the pit typically received non-salvageable rubble materials such as concrete, brick, tile, asphalt, wallboard, lumber, rubber, and non-returnable empty drums. Once full, the pit was backfilled with soil and sediments to grade level.
C-Area Process Sewer Lines As Abandoned, NBN	The C-Area Process Sewer Lines (NBN) Site Evaluation Area (SEA) is in the central portion of the SRS and central portion of the C-Area. It surrounds several buildings, including the C-Reactor (105-C). The SEA is approximately 5.1 miles south southeast of the nearest SRS boundary. The SEA is in a relatively flat area on a ridge that runs in a northeast – southwest direction with the majority of the SEA covered over with numerous buildings, roads and associated paved areas. Vegetation within the SEA consists of many small areas of grass between the buildings and paved areas. The SEA is approximately 1600 feet long by 1000 feet wide and contains no stained soil or stressed vegetation. The SEA includes approximately one-half of the C-Area, including the reactor building (105-C) and the wastewater treatment area (Building 183-2C). There is a small wetland associated with an unnamed tributary of Fourmile Branch approximately 2000 feet northwest of the northwest corner of the SEA and is within the Fourmile Branch Watershed. The C-Area of SRS is the site of a nuclear reactor, which operated from 1955 to 1985, when it was shut down for maintenance. The C-Area contains three sewer systems: sanitary, storm, and process sewers. The process sewers were originally constructed to carry wastewater from the process facilities to the C-Reactor Seepage Basins (904-66G, -67G, and -68G). The sewer lines were constructed of vitrified clay and steel pipe. Most of the contaminants in the wastewater were radiological compounds, which were released into the reactor coolant system or disassembly basin water from process leaks or carry-over on the surface of fuel assemblies. The sewer lines were in use from 1959 to 1987. Compounds known to have been in the wastewater include tritium, chromium-51, cobalt-60, cesium-134, cesium-137, and strontium-90. The wastewater was discharged to the C-Reactor Seepage Basins (904-66G, -67G, and -68G) from 1959 to 1970. From 1970 to 1978, the wastewater was mixed with large volumes of cooling water and discharged to the C-Reactor Area Discharge Canal (NBN).
C-Area Reactor Cask Car Railroad Tracks As Abandoned, NBN	The C-Area Reactor Area Cask Car Railroad Tracks, as Abandoned (NBN) Site Evaluation Area (SEA) is an area where railroad cars containing casks of radiological materials were stored from 1955 to 1985 while awaiting transport to the F and H Areas of SRS. The C-Area of SRS is the site of a nuclear reactor, which operated from 1955 to 1985, when it was shut down

	<p>for maintenance. The exteriors of casks could occasionally become contaminated with radiological isotopes during the course of packaging operations. When the cask cars were exposed to rain, there was a potential for radiological isotopes to be washed off the casks onto the ground. This SEA is in the central portion of the SRS and the central portion of the C-Area. It surrounds several buildings, including the C Reactor (105-C). The SEA is approximately 5.1 miles south southeast of the nearest SRS boundary. The SEA consists of all of the railroad tracks and roadbed material within the C-Area perimeter fence and is in a relatively flat area on a ridge that runs in a northeast – southwest direction. The majority of the SEA is paved with gravel with grassy vegetation along the edges. The SEA is an irregularly shaped unit adjacent to railroad tracks within an area approximately 1800 feet long by 1800 feet wide and contains no stained soil or stressed vegetation. There is a small wetland associated with an unnamed tributary of Fourmile Branch approximately 2000 feet northwest of the northwest corner of the SEA. The SEA is within the Fourmile Branch Watershed. No other chemicals were transported by rail; the only constituents present were radiological isotopes.</p>
C-Area Reactor Groundwater, NBN	<p>C-Reactor Area is located in the south-central portion of the Site. Acceptable past disposal practices associated with historical reactor operations have produced waste units and potential waste units (e.g., spills, etc.) within the area. Some of these units may have contributed contamination to the area groundwater with operation waste materials. Groundwater characterization activities for the C-Area Reactor Groundwater will not duplicate waste unit characterization previously performed near the C-Reactor Area. The investigation of the C-Area Reactor Groundwater will utilize existing data.</p>
C-Area Reactor Seepage Basins, 904-066G, 904-067G, 904-068G	<p>The three C-Area Reactor Seepage Basins are located outside the C-Area perimeter fence. These basins received fission and activation products from C Reactor. The basins are unlined earthen excavations and were in use from 1957 to 1970 and again from 1978 to 1986. During that time, process purge water was released to the basins to allow a significant portion of the tritium to decay before the water outcropped to surface streams.</p>
Central Shops Burning/Rubble Pit, 631-1G, -3G	<p>The Central Shops Burning/Rubble Pits (631-1G and 631-3G) are located approximately 1,000 feet north of the Central Shops Area in the central part of SRS. The pits are two separate disposal areas that have been grouped together due to their close proximity and similarity of function. Between 1951 and 1973, both pits were used to dispose of various waste materials, including organic solvents. The 631-1G and 631-3G pits are approximately 200-feet long by 30-feet wide by 10-feet deep and 400-feet long by 50-feet wide by 40-feet deep, respectively. From 1973 until 1978, Pit 631-1G was used solely for the disposal of inert solid wastes. Disposal activities ceased in 1978, and the area was covered with soil. From 1973 to 1983, Pit 631-3G was used for the disposal of dry inert rubble. In 1983, the disposal area was covered with soil to form a linear mound.</p>
Central Shops	<p>The Central Shops Burning/Rubble Pit is located approximately 1,000 feet</p>

<p>Burning/Rubble Pit, 631-5G and Heavy Equipment Wash Basin, NBN</p>	<p>north of the Central Shops Area in the central part of SRS. It was constructed for the disposal of various waste materials. Approximate dimensions of the pit are 385-feet long by 35-feet wide by 10-feet deep. This pit was used from 1951 until 1973 to burn wastes, including hazardous substances such as organic solvents. From 1973 to 1978 it was used to dispose of inert solid wastes. In 1978, disposal activities ceased, and the pit was covered with soil.</p> <p>The Heavy Equipment Wash Basin consists of the wash basin, discharge lines from the wash facility and washdown areas, the spray irrigation fields, NPDES Outfall CS002, and groundwater. The Heavy Equipment Wash Facility has been used to clean soil and grease from equipment. Wastewater from the operation was captured in a sump in the building, then discharged to the wash basin in the early years of operation and to the NPDES Outfall CS002 in more recent years. The discharge water would then flow to the unnamed tributary near the entrance to the Central Shops Burning/Rubble Pit (631-5G). Historic information suggests that the water in the wash basin was spray-irrigated to reduce the amount of water in the basin.</p>
<p>Central Shops Sludge Lagoon, 080-24G</p>	<p>The Central Shops Sludge Lagoon (080-24G) is located southwest of the Central Shops Area. The lagoon is approximately 60-feet long by 40-feet wide by 5-feet deep and began operation in the early 1950s. Its purpose was to treat sanitary waste by oxidation and other degradation processes. During peak operation, the lagoon received about 100,000 gallons of sludge solution per year with a solids content of 2 to 5%. The lagoon ceased accepting sewage directly in the mid-1970s and was used as an evaporation pond for treated sewage sludge until 1986. No documentation exists to indicate that the unit received hazardous waste.</p>
<p>CMP Pits, 080-170G, -171G, -180G, -181G, -182G, -183G, -190G</p>	<p>The Chemicals, Metals, Pesticides (CMP) Pits are located approximately 1 mile north of L-Area and 1 mile northeast of the 131-3L Rubble Pit. This unit originally consisted of seven unlined pits designed to receive nonradioactive wastes such as spent solvents, pesticides, and toxic metals. Each pit was roughly 45- to 70-feet long, 10- to 15-feet wide, and 10- to 15-feet deep. The pits were in use from August 1971 until February 1979. In December 1979, the pits were taken out of operation permanently. In 1984, the pits were excavated, and the waste materials were removed. The area was then backfilled and capped with a geosynthetic material. During 1984, a series of well clusters was installed to monitor groundwater. Groundwater monitoring data at the unit indicated the presence of volatile organic compounds and metals in the groundwater in various wells. A soil-gas survey was performed in the vicinity of the CMP Pits in 1991. Preliminary results of this survey indicated the soil near or beneath the CMP Pits contained volatile organic compounds (VOCs). The soil-gas survey also suggested that additional monitoring wells were required to characterize groundwater contamination.</p>
<p>D-Area Burning/Rubble</p>	<p>The D-Area Burning/Rubble Pits are located on the western portion of D Area. The 431-D pit is approximately 258-feet long by 46-feet wide by 10-</p>

Pits, 431-D, -1D	feet deep; the 431-1D pit is approximately 229-feet long by 37-feet wide by 10-feet deep. The Pits operated from 1951 to 1973. During the operation of the pits, spent organic solvents, waste oils, rags, paper, plastics, wood, telephone poles, and rubber were disposed and periodically (monthly) burned. In 1973, the burning of wastes ceased at SRS. A layer of soil was placed over the pit debris, and the site was then filled to capacity with rubble such as concrete, brick, tile, asphalt, plastics, wallboard, rubber, and nonreturnable empty drums. When the pits were filled to capacity, a layer of soil was placed over the pit. Contaminants of concern are low concentrations of metals (arsenic, barium, chromium, copper, lead, mercury, nickel, selenium), semi-volatile organic compounds in soil, and metals (iron, lead, manganese) in groundwater.
D-Area Expanded Operable Unit:  D-Area Ash Basin, 488-D  D-Area Coal Pile Runoff Basin, 489-D  D-Area Upgradient Sources  D-Area Waste Oil Facility, 484-10D	<p>The Ash Basin (488-D) is located in the southwestern part of D Area, which is situated in the west-southwest portion of the Savannah River Site. The basin, which began operation in 1951, is approximately 23 acres in size and 18-feet deep. The purpose of this unit was to intercept, stabilize, and provide passive treatment of ash sluice water prior to discharge to local surface streams. The basin ceased receiving sluice water when the construction of the 488-1D and 488-2D Ash Basins was completed. The 488-D Ash Basin was subsequently used for the placement of dry ash and coal-crusher reject material. There is no record of hazardous waste or hazardous constituents being disposed in the basin. Analysis of basin soil indicates the constituents of concern (COCs) are elevated concentrations of several heavy metals typically found in coal ash including iron, manganese, barium, and sodium. Baseline groundwater sampling near the basin shows high concentrations of total dissolved solids, sulfate, and silica. Metals found in the groundwater include calcium, chromium, iron, potassium, magnesium, manganese, and sodium. Some monitoring wells contain low pH water and concentrations of trichloroethylene (TCE) detected above the primary drinking water standards.</p> <p>The D-Area Coal Pile Runoff Basin (489-D) is located approximately 100 feet south of the D-Area coal storage site. Steam and electricity for SRS activities are produced by a coal-fired power plant located in D Area. Coal is stored at the power plant location. Surface runoff from the coal storage pile was discharged to surface streams until the NPDES regulation took effect in 1977. To meet NPDES discharge requirements and in response to SCDHEC requests, an unlined, earthen containment basin was constructed near the coal storage location to intercept and stabilize surface runoff from the coal pile. The coal pile runoff basin was constructed in 1978. The D-Area Powerhouse, including the coal pile and coal pile runoff basin, is still in service. Constituents of concern within the basins include low pH, sulfate, iron, manganese, magnesium, aluminum, cadmium, chromium, and arsenic.</p> <p>The D-Area Waste Oil Facility (484-10D) consists of a 2,000 gallon, 0.25-inch-thick steel-plate storage tank and a 500-gallon steel skid-tank located in</p>

	<p>a concrete diked area covered by a corrugated roof. This area is 40 feet by 60 feet. The tank stores waste oil that is used as fuel for the D-Area Powerhouse (484-D) boilers as part of an energy recovery program. A sump in the diked area collects and transfers spills to the waste oil tank. A pipe approximately 10-feet long runs from the storage tank to the powerhouse.</p> <p>The Waste Oil Facility has been in operation since 1953; it is currently active and receives waste oil, engine lubricant, pump oil, kerosene, fuel oil, diesel oil, non-polychlorinated biphenyl (polychlorinated biphenyl) transformer oil, and gear box oil.</p> <p>Based on soil-gas analyses, there have been releases to the soil of 1,1,1-trichloroethane, trichloroethylene, and tetrachloroethylene. Pentane, hexane, and heptane were above expected background concentrations.</p>
D-Area Oil Seepage Basin, 631-G	<p>The D-Area Oil Seepage Basin (631-G) was originally designed and constructed as a series of unlined seepage trenches to dispose waste oils and other fluids unsuitable for burning in 400-D Powerhouse boilers. The trenches began receiving waste oils and fluids in 1952 and were periodically burned along with general office and cafeteria waste. This practice continued until 1973 when open burning ceased at SRS. However, the basin continued to receive waste oils until it was backfilled and closed in 1975. Approximately 1 foot of standing liquid plus an unspecified number of 55-gallon drums remained in the basin when it was backfilled. Investigation at the unit revealed the presence of buried drums, containing liquids. An Interim Action Record of Decision was issued on March 6, 1995 to remove the buried drums, any pumpable free product, and discernible layers of sludge present within the basin. In addition, a bioventilation system was installed that pumped fresh air and nutrients into the soil to volatilize residual organics in the soil and to enhance the naturally occurring aerobic degradation.</p>
D-Area Rubble Pit, 431-2D	<p>The D-Area Rubble Pit, 431-2D is located 500 feet south of 431-D and 431-1D Burning/Rubble Pits and to the east outside of the SRS. The site is a relatively flat and heavily vegetated excavated earthen pit covering an area of approximately 70,900 square feet. Documentation of operating dates is believed to have been between 1973 and 1983. Operational procedures for the pit indicate that it was used to receive only non-hazardous material (metals, concrete, lumber, and poles). The quantity of the waste placed in the pit is unknown. Soil Sampling at the D-Area Rubble Pit, 431-2D in 1997 indicated the presence of polyaromatic hydrocarbons (PAHs) and arsenic.</p>
ECODS A-2 (Near Sandblast Area CMM-001), NBN	<p>The Early Construction and Operational Disposal Site (ECODS) A-2 (NBN) Site Evaluation Areas (SEA) was used during the construction and early operation of SRS for disposal of construction debris and other waste materials. Waste was buried in a single trench and may have been used as a burn pit for disposal of combustible waste. ECODS A-2 is in the northwestern portion of the SRS, immediately south of the M-Area, and is approximately 0.75 miles south of the nearest SRS boundary. The SEA is in</p>

	<p>a relatively flat area that slopes gradually to the south, covered with grassy vegetation, and is approximately 200 feet long by 50 feet wide. The SEA contains no stained soil or stressed vegetation. Several large rubble piles are immediately south of the SEA. The majority of these are piles of soil that were created by the grading of an adjacent area in the mid-1980s. The other rubble piles are more recent, are comprised mostly of concrete and construction debris, and were left there by various construction contractors. There are no wetlands in the vicinity of this SEA and it is within the Savannah River Swamp Drainage Watershed. Site Evaluation Area, Construction Sandblast Area CMM-001 (NBN) overlaps this SEA. The sandblast area was created during the sandblasting operations of six large aboveground storage tanks in 1989. ECODS A-2 is one of 25 ECODS that was identified during a review of early 1950s aerial photographs. Aerial photographs identify this SEA as being in use from approximately September 1951 to September 1952. The single trench contained trash and construction debris, such as rubble and concrete. Elevated concentrations of arsenic and iron are present at the SEA.</p>
<p>ECODS F-1 (Southeast of F-Area Ash Basin, 276-0F)</p>	<p>The Early Construction and Operational Disposal Site (ECODS) F-1 (NBN) Site Evaluation Area (SEA) was used during the construction and early operation of SRS for disposal of construction debris and other waste materials. Waste was buried in three long, unlined, trenches. One of the trenches may have been used as a burn pit for disposal of combustible waste. This SEA is in the central portion of the SRS and on the northwestern edge of the E-Area. The eastern portion of the SEA is within the boundaries of the Low Level Radioactive Waste Disposal Facility (LLRWDF) (643-7E). The Site Evaluation Area (SEA) is approximately 6.1 miles southeast of the nearest SRS boundary. The SEA is on the edge of a wooded area that slopes moderately to the southeast. The western portion of the SEA is lightly wooded with pine trees and heavy underbrush and the eastern portion is covered by grassy vegetation. An asphalt-paved road crosses the central portion of the SEA in a northeast-southwest direction. The SEA consists of three adjacent trenches within an area approximately 600 feet long by 75 feet wide and contains no stained soil or stressed vegetation. The western portion is bordered to the north, west, and south by vacant wooded areas and is within the Upper Three Runs Watershed. ECODS F-1 (NBN) is one of 25 ECODS that were identified during a review of early 1950s aerial photographs. Aerial photographs identify the SEA as being in use from approximately September 1951 to January 1953. The trench contained trash and construction debris, such as rubble and concrete. The majority of the area containing the SEA has been disturbed by construction projects associated with the LLRWDF (643-7E). The southeastern portion of the SEA was uncovered during construction of ELLT-1 in 1987 and was covered by the LLRWDF closure cap. The central portion of the SEA was removed by construction of an asphalt-paved road and associated drainage ditches and berm during an expansion of the LLRWDF in 1994. The only portion of the SEA remaining undisturbed is at the northwestern edge. Elevated</p>

		concentrations of arsenic, iron, and cyanide are present in the soil.
ECODS F-3 (East of ECODS F-1)		The Early Construction and Operational Disposal Site (ECODS) F-3 (NBN) Site Evaluation Area (SEA) is an existing open trench excavated for a drainage channel in 1953, although trash may have been deposited in the unit at a later date. The western edge of the open trench may have been used to burn combustible waste. This SEA is in the central portion of the SRS, on the northwestern edge of E-Area, and is approximately 6.1 miles southeast of the nearest SRS boundary. The SEA is in a relatively flat area that slopes gradually to the southeast. An old drainage ditch is within the SEA that has steep sides and is approximately 8 feet deep from the ground surface. The majority of the SEA is covered with thick underbrush, the western portion contains grassy vegetation, and the eastern edge is lightly wooded with small pine trees. The SEA is approximately 200 feet long by 50 feet wide and contains no stressed vegetation. Stained soil with petroleum based odors was discovered at several locations by sampling personnel in September 2000. These conditions were most likely the results of burning activities that were conducted at the western edge of the unit. The SEA is within the Upper Three Runs Watershed. ECODS F-3 is one of 25 ECODS that were identified during a review of early 1950s aerial photographs. Some of these sites were also used as burn pits for disposal of combustible waste. However, ECODS F-3 differs from the other typical ECODS in that it is an existing open trench. The trench was not backfilled, and the western edge appears to have been used to burn combustible materials. Aerial photographs identify the SEA being constructed from approximately January 1953 to June 1954. Elevated concentrations of arsenic and iron are present in the soil.
ECODS N-2 (Adjacent to Miscellaneous Rubble Pile)		The Early Construction and Operational Disposal Site (ECODS) N-2 (NBN) Site Evaluation Area (SEA) is in the central portion of the SRS, on the southwestern edge of the N-Area, and approximately 6.5 miles east-southeast of the nearest SRS boundary. The SEA is in a relatively flat area that slopes gradually to the south and southeast and is lightly wooded with pine trees and underbrush. The SEA is approximately 525 feet long by 150 feet wide and contains no stained soil or stressed vegetation, but does contain several small piles of debris. The SEA is bordered to the north by a dumpster storage area and a railroad spur, to the east by the Miscellaneous Rubble Pile (631-7G) and the SRL Oil Test Site (080-16G) waste units, to the west by an unpaved road, and to the south by a wooded area. A review of historical 1951 aerial photographs revealed that the land area where the SEA is located was used as farmland prior to construction of the SRS. A small wetland (approximately 10 acres) designated as Carolina Bay #126 is approximately 700 feet southeast of the southeast corner of the SEA and is within the Fourmile Branch Watershed. The SEA is one of 25 Early Construction and Operational Disposal Sites (ECODS), which were identified during a review of early 1950s aerial photographs. These sites were used during the construction and early operation of SRS for disposal of construction debris and other waste materials. Some of these sites were also used as burn pits



	<p>for disposal of combustible waste. Aerial photographs identify ECODS N-2 as being in use from approximately January 1953 to May 1955. The trench contained used oil, construction debris, and concrete. The SEA is unique, as it is the only ECODS known to have received waste oil. A review of the analytical results indicated that (Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenz (a,h)anthracene, and N-Nitrosodipropylamine), and PCB1254 were present in the soil.</p>
F- and H-Area Hazardous Waste Management Facilities Groundwater	<p>The F- and H-Area Seepage Basins Groundwater Operable Units consist of the groundwater impacted by operations of the F- and H-Area Hazardous Waste Management Facilities (HWMFs). The F- and H-Area HWMFs are located in the center of the Savannah River Site (SRS), approximately five miles and six miles, respectively, from the nearest plant boundary.</p> <p>The F-Area HWMF consists of three unlined, earthen surface impoundments, referred to as seepage basins. The F-Area seepage basins cover approximately 6.5 acres. They received approximately 1.8 billion gallons (7.1 billion liters) of low-level waste solutions originating from the processing of uranium slugs and irradiated fuel in the F-Area Separations Facility from 1950 through 1988. The effluents were acidic, low-activity waste solutions containing a wide variety of radionuclides and dissolved metals.</p> <p>The H-Area HWMF consists of four unlined, earthen seepage basins that cover approximately 15.5 acres. They received approximately 1.6 billion gallons (6.0 billion liters) of similar waste solutions resulting from processing at the H-Area Separations Facility during the same time period. In addition to the waste effluents from the H-Area chemical separations processes, the H-Area basins received effluent from tritium facilities and from the Receiving Basins for Offsite Fuel.</p> <p>Waste solutions were transported approximately 3,000 feet from each processing area through underground vitrified clay pipes to the basins. After entering the basin, the wastewater was allowed to evaporate and to seep into the underlying soil. The purpose of the basins was to take advantage of the interaction with the basin soils to minimize the migration of contaminants to exposure points. Though the seepage basins essentially functioned as designed, the acidic nature of the basin influent caused mobilization of metals and radionuclides resulting in groundwater contaminant plumes. More than 99% of the radioactive releases to the basins are attributable to tritium.</p>
F-Area Burning/Rubble Pits, 231-F, -1F, -2F	<p>The F-Area Burning/Rubble Pits (231-F and 231-1F) and the F-Area Rubble Pit (231-2F) are located off Road C, near F Area.</p> <p>Burning/Rubble Pits: The 231-F Pit is approximately 275-feet long by 50-feet wide by 10-feet deep, and the 231-1F Pit is approximately 325-feet long by 50-feet wide by 10-feet deep. The burning/rubble pits operated from</p>

	<p>1951 to 1973. During operation of the pits, spent organic solvents, waste oils, rags, paper, plastics, wood, telephone poles, and rubber were disposed of and periodically (monthly) burned. In 1973, the burning of wastes ceased at SRS. A layer of soil was placed over the pit debris and then was filled to capacity with rubble such as concrete, brick, tile, asphalt, plastics, wallboard, rubber, and nonreturnable empty drums. When the pits were filled to capacity, a layer of soil was placed over the pit. All burning/rubble pits were closed by 1981.</p> <p>Rubble Pit: The 231-2F is approximately 200-feet long by 40-feet wide by 10-feet deep. The F-Area Rubble Pit operated from approximately 1951 to 1970. Rubble disposed of in the pit includes dry inert concrete, lumber, cement, fence and telephone poles, brick, tile, wallboard, paneling, metal scraps, drums, electrical conduit, and plastics. No burning took place at this rubble pit. The pit was filled with soil and closed by 1983.</p> <p>COCs for the unit are low concentrations of metals (arsenic, barium, chromium, lead, mercury, and nickel), semi-volatile organic compounds in soil, metals (radium, lead, and iron), nitrate, and semi-volatile organic compounds in groundwater.</p>
F-Area Retention Basin, 281-3F	<p>The F-Area Retention Basin (381-3F) is located just outside the southern fence of F-Area. This basin is approximately 150-feet long by 100-feet wide by 10-feet deep. The retention basin was used from 1955 to 1973. The open, unlined basin provided temporary emergency storage for potentially contaminated cooling water from the chemical separation process. When radioactivity was encountered in the cooling water, immediate action was taken to divert the water from surface drainage streams to the retention basin. If the radioactivity was above stream release limits, the wastewater was processed by deionization to reduce contamination and permit release. The F-Area basin was excavated, backfilled with clean soil, and is now covered with vegetation.</p> <p>SRS records do not show the exact quantities of radioactive water discharged to the basin. Preliminary environmental investigations have detected radioactive substances in and around the basin, but SRS believes only trace quantities of hazardous substances were discharged to the basin.</p>
Ford Building Seepage Basin, 904-91G	<p>The Ford Building Seepage Basin (904-91G) is located at the extreme southeastern tip of the Central Shops area, approximately 250 feet north of the railroad track. When the Ford Building Seepage Basin was originally constructed, the bottom of the basin had dimensions of 60-feet by 20-feet, while the dimensions at ground level were 80-feet long by 40-feet wide by 10-feet deep. It was constructed in 1964 to receive wastewater resulting from process equipment repair work in the Ford Building. A 6,000-gallon underground retention tank is located adjacent to the Ford Building and is connected to the seepage basin by an underground sewer line pipe. Much of the repair work conducted in the Ford Building was on heat exchangers from</p>

	<p>the reactor areas, which generated wastewater contaminated with low levels of radioactivity and trace amounts of non-radioactive organic and inorganic compounds. The wastewater was sent to the retention tank, analyzed for radionuclides, and either released to the seepage basin or transferred to Waste Management Operations for proper disposal. The use of the Ford Building Seepage Basin ceased in 1984 because of the purchase of new heat exchanger heads that reduced the need for repairs. Since then, wastewater from Ford Building operations has been transported to Waste Management Operations for disposal. The constituents of concern (COCs) in the soil include cobalt-60, strontium-90, cesium-137, europium-155, cadmium, mercury, and zinc. Radionuclides are potential COCs in groundwater; however, no radionuclides have been detected in area wells, indicating that releases from the Ford Building Seepage Basin have not impacted the groundwater.</p>
<p>Fourmile Integrator Operable Unit (Including the un-named tributary of Fourmile Branch South of C-Area)</p>	<p>Integrator Operable Units (IOUs) are defined as surface water bodies (e.g., site streams and Savannah River) and associated wetlands, including the water, sediment, and related biota. The Savannah River Site has six IOUs that correspond to the respective watersheds.</p>
<p>H-Area Groundwater Operable Unit, NBN</p>	<p>The H-Area Tank Farm is located within H Area in the center of the Savannah River Site (SRS), approximately six miles from the nearest plant boundary. The facility is comprised of 29 carbon steel waste tanks that contain both low and high level radioactive waste. A Core Team of representatives from the U.S. Department of Energy, U.S. Environmental Protection Agency, and the South Carolina Department of Health and Environmental Control met in January 2000 to review characterization results for the operable unit. At this meeting, the Core Team agreed that: no discernable contaminant plume is associated with the H-Area Tank Farm; a Mixing Zone is not needed in the absence of a definable plume; a new, expanded groundwater operable unit will be defined; and continued groundwater monitoring is necessary. In April 2000, the Core Team agreed to eliminate the milestones for the H-Area Tank Farm Groundwater Operable Unit, create a new groundwater monitoring strategy, and develop a new schedule of milestones for a larger H-Area Groundwater Operable Unit. This new operable unit includes the groundwater systems associated with the H-Area Tank Farm and other operating facilities and waste units.</p>
<p>H-Area Retention Basin, (281-3H)</p>	<p>The H-Area Retention Basin is located just south of Road E near the intersection of Road E and Road 4. The basin is approximately 150-feet long by 100-feet wide by 10-feet deep. It was used from 1955 to 1973. The open, unlined basin provided temporary emergency storage for potentially contaminated cooling water from the chemical separation process. When radioactivity was encountered in the cooling water, immediate action was taken to divert the water from surface drainage streams to the retention basin.</p>

	<p>If the radioactivity was above stream release limits, the wastewater was processed by deionization to reduce contamination and permit release. The H-Area Basin is fenced in, open to atmospheric conditions, and presently contains water.</p>
HP- 52 Ponds, NBN	<p>HP-52 Ponds are located adjacent to the H Area, immediately south of the HP-52 Outfall. The ponds were formed as an action to clean up a spill in the stream from the HP-52 Outfall. This storm sewer outfall became contaminated in May 1967 when an overflow of high level waste to the ground and nearby storm sewer occurred during a transfer of waste in the H-Area Tank Farm. In February 1969, waste reached the storm sewer following a rupture in a waste transfer line. Most of the high level waste (primarily cesium-137) from the 1967 incident seeped into the soil. Contaminated soil containing 1200 curies was removed and placed in the burial ground. A much smaller amount of high level waste (primarily cesium-137) leaked to the storm sewer in 1969, after which soil containing approximately 0.5 curies was disposed at the burial ground. As a result of the 1967 incident, two small holding ponds were constructed to contain contaminated water. After the 1969 release, the ponds were filled with contaminated soil from the stream channel and covered with clean backfill. Concrete markers were erected to identify the location of these ponds.</p>
K-Area Area of Concern, NBN	<p>The K-Area of Concern (NBN) Site Evaluation Area (SEA) is a remaining two-acre portion of a larger, nine-acre area of concern. Seven of the 9 acres were evaluated in 1990. This SEA is located in the central western portion of the K-Area of the SRS. The nearest SRS boundary is located approximately 7.0 miles southwest of the SEA. The SEA is located in a relatively flat area that slopes gradually to the northeast. The SEA is covered with grassy vegetation and contains no stressed vegetation or other indications of contamination. The area is bordered to the north and south by grassy areas, to the east by the K-Area Rubble Pile (631-20G) and to the west by Building 704-34K. There are large areas of wetlands located approximately 0.25 mile north of the SEA. These areas are part of the larger wetlands associated with Indian Grave Branch and the Pen Branch flood plains. The SEA is located in the Pen Branch Watershed. The seven acres evaluated in 1990 were determined to contain no hazardous substances, and the land was released back to Project Management for continuation of trailer installations. The K-Area of Concern (NBN) was discovered on January 24, 1990, during land clearing activities conducted for the placement of new office trailers (704-6K through 704-19K) in the northeast section of K-Area. This area was approximately 9 acres in size. Various waste materials, including lumber, radiological protective clothing, boot covers, old lab debris, batteries, possibly a belt from a conveyor, asbestos-containing building materials, and a container labeled "mercury" were discovered. Land clearing was halted until investigations could be completed. Currently this 2-acre area serves as a monitoring well area for the K-Area Rubble Pile (631-20G) and the K-Area Burning/Rubble Pit (131-K). Vehicles enter this area on a regular basis to gather groundwater samples. Elevated levels of</p>

	PAHs, Benzo[a]anthracene, Benzo[b]pyrene, Benzo[k]fluoranthene, Dibenz[a,h]anthracene, and Indeno[1,2,3c,d]pyrene were discovered at the SEA.
K-Area Bingham Pump Outage Pit, 643-1G	The Bingham Pump Outage Pit in K-Area is an unlined earthen pit located outside the perimeter fences. Repairs to primary and secondary reactor cooling systems were performed between 1957 and 1958. The outages of the cooling water systems occurred as a result of the modification became known as the Bingham Pump Outages. The pits received low-level (less than 25 mR/hr) construction debris, such as pipes, cables, ladders, drums, and boxes of miscellaneous hardware, generated by the repairs. No pumps or liquids are buried at the pits. The pits were excavated to a depth of 13 feet, filled with approximately 9 feet of debris, and backfilled with approximately 4 feet of cover soil. It is conservatively estimated that at the time of burial, the total amount of radioactivity buried in each reactor area was 1 curie. Approximately 70% of this activity is estimated to have been eliminated through radioactive decay since 1958. A ground penetrating radar (GPR) survey was performed to delineate pit boundaries. Measurements of surface radiation levels revealed no detectable surface radiation. A soil-gas survey also indicated very low concentrations of volatile organic constituents (VOCs).
K-Area Burning/Rubble Pit 131-K and Rubble Pile, 631-20G	<p>The 131-K Pit is approximately 240-feet long by 30-feet wide by 10-feet deep. The burning/rubble pits operated from 1951 to 1973. During the operation of the pits organic materials of unknown use and origin, rags, paper, plastics, wood, telephone poles, and rubber were disposed and periodically (monthly) burned. In 1973, the burning of wastes ceased at SRS. A layer of soil was placed over the pit debris, and the unit then was filled to capacity with rubble such as concrete, brick, tile, asphalt, plastics, wallboard, rubber, and non-returnable empty drums. When the pit was filled to capacity, a layer of soil was placed over the pit. All burning/rubble pits were closed by 1981. Preliminary soil, soil-gas, and groundwater screening of the area showed solvents in groundwater and low concentrations of arsenic, chromium, lead, and components of insecticides in soil in the area. Groundwater monitoring data results show that the above-mentioned substances have exceeded US EPA maximum contaminant levels (MCLs) at least once.</p> <p>The K-Area Rubble Pile (631-20G) is located east of the K Reactor and is approximately 300-feet long, 50- to 125-feet wide, and 4- to 6-feet high. The K-Area Rubble Pile was used for bulk solid waste disposal during SRS plant construction and may have received waste from the time of plant construction to the early 1970s. The waste in the area is suspected to consist of construction rubble not disposed in the adjacent K-Area Burning/Rubble Pit. Visual surveys have noted the presence of concrete, wood, asphalt, vegetation and tree stumps, scrap metal, and old metal containers.</p>
K-Area Coal Pile Runoff Basin,	The K-Area Coal Pile Runoff Basin (189-K) is located approximately 230 feet west of the K-Area coal storage site. Steam and electricity for SRS

189-K	activities were produced by seven coal-fired power plants located in A, C, D, F, H, K, and P Areas. Coal was stored at each power plant location. Surface runoff from the coal storage piles was discharged to surface streams until the National Pollution Discharge Elimination System (NPDES) regulations took effect in 1977. To meet NPDES discharge requirements and in response to SCDHEC requests, seven unlined earthen containment basins were constructed near each coal storage location to intercept, stabilize, and treat surface runoff from the coal piles. All seven coal pile runoff basins were constructed between 1978 and 1981. The C- and F-Area basins have been inactive since late 1985 when the coal piles at these areas were removed. The constituents of concern within the basins were low pH, sulfate, iron, antimony, aluminum, arsenic, and vanadium. A Removal Action was performed in 1997, and all constituents of concern were removed. The area no longer poses a threat to human health or the environment.
K-Area Reactor Seepage Basin, (904-65G)	The K-Area Reactor Seepage Basin (904-65G) is located west of the K Reactor. The basin was constructed in 1957 to receive low-level radioactive wastewater from K Reactor. The original dimensions of the basin were 135-feet long by 70-feet wide by 7-feet deep. Although many different radionuclides have been discharged into the basin, almost all radioactivity is due to tritium, strontium-90, cesium-137, and cobalt-60. The discharge may also contain amounts of non-radioactive detergents and organic and inorganic substances. Disposal ceased at the basin in 1960. The basin remains open and is currently designated a radiologically controlled area (RCA). The activities associated with this unit are being addressed under the Plug-In Record of Decision (that addressed the source for the C-, L-, K-, and P-Area Reactor Seepage Basins).
L-Area Bingham Pump Outage Pits, 643-2G, -3G	The Bingham Pump Outage Pits in L-Area are unlined earthen pits located outside the perimeter fences. Repairs to primary and secondary reactor cooling systems were performed between 1957 and 1958. The outages of the cooling water systems occurred as a result of the modifications became known as the Bingham Pump Outages. The pits received low-level [less than 25 mR/hr] construction debris such as pipes, cables, ladders, drums, and boxes of miscellaneous hardware generated by the repairs. No pumps or liquids are buried at the pits. The pits were excavated to a depth of 13 feet, filled with approximately 9 feet of debris, and backfilled with approximately 4 feet of cover soil. It is conservatively estimated that, at the time of burial, the total amount of radioactivity buried in each reactor area was 1 curie. Approximately 70% of this activity is estimated to have been eliminated through radioactive decay since 1958. A ground-penetrating radar survey was performed to delineate pit boundaries. Measurements of surface radiation levels revealed no detectable surface radiation. A soil-gas survey also indicated very low concentrations of volatile organic compounds.
L-Area Burning/Rubble Pit, 131-L, Gas Cylinder	The L-Area Burning/Rubble Pit (131-L) is located in a grassy, fenced-in, level area approximately 0.25-mile northwest of L Area, off Road 7. The L-Area Burning/Rubble Pit was constructed in 1951. Dimensions of the pit were approximately 230-feet long by 29-feet wide by and 10-feet deep.

<p>Disposal Facility 131-2L, and Rubble Pile 131-3L</p>	<p>Actual contents of the L-Area Burning/Rubble Pit are not fully known, but it is assumed from information from other Burning/Rubble Pits at SRS that wastes such as paper, plastics, rubber materials, rags, wood, cardboard, organic materials of unknown use and origin were disposed (burned) on a monthly basis. The burning of waste at SRS was discontinued in October 1973. A layer of soil was placed over the burned remains, and the pit was filled with non-salvageable rubble materials such as concrete, brick, tile, asphalt, wood, wallboard, lumber, rubber, and non-returnable empty drums and cans. In 1978, the pit became full and was backfilled with soil and sediments to grade level.</p> <p>The Gas Cylinder Disposal Facility 131-2L is located beside the L-Area Burning/Rubble Pit (131-L). The first date of receipt is unknown; the last waste was received in 1977. Partially filled gas cylinders were placed in the ground, buried in concrete, the tops removed, and the gas vented to the atmosphere. The cylinders were covered with concrete and backfilled with dirt, and a cap of asphalt was placed over the mound. The depth of the pit is unknown. The unit consists of 28 empty cylinders that contained the following gases: HF, F, HBr, BrF<sub>5</sub>, ClF<sub>3</sub>, NH<sub>4</sub>, HCl, Br<sub>3</sub>, Cl<sub>3</sub>, NO<sub>3</sub>, H<sub>3</sub>S, SO<sub>3</sub>, acetylene, O<sub>2</sub>, H<sub>2</sub>, argon, and several cylinders with unknown contents.</p> <p>The L-Area Rubble Pile (131-3L) is located on the north side of a dirt road, northwest of L Area. Dimensions of the unit are 500-feet long by 120-feet wide. The unit consists of several rubble piles, randomly scattered throughout the area. Based on the sizes and shapes of the rubble piles, disposal at 131-3L apparently consisted of dumping truckloads of waste on the land surface. It was believed wastes were not buried at the unit because there is no visible evidence of excavation. However, rubble pits may have been leveled or reworked with heavy machinery. Assorted cans, bottles, construction timbers, and scrap metal are visible on the surface of the rubble piles. The unit is overgrown with brush and trees, suggesting that it has been inactive for many years. Based on soil-gas surveys, the constituents of concern (COCs) are chloroform, trichloroethylene, tetrachloroethylene, carbon tetrachloride, and o-xylene.</p>
<p>L-Area Hot Shop, 717-G, Sandblast Area CML-003, NBN</p>	<p>The L-Area Hot Shop (717-G) is one of three interconnected buildings used to repair equipment from the reactor areas. The other two buildings are 712-G and 707-G. These buildings were constructed in the 1960s. They were last used in 1983, and maintenance work has been minimal since that time. These buildings were used extensively during the L-Area Restart Program to repair equipment.</p> <p>The L-Area Sandblast Area CML-003 has the same Operating Unit boundaries (footprint) as the L-Area Hot Shop Operating Unit. The sandblast area was used during operation of the L-Area facility. There is no record of the frequency of the sandblasting, nor is there any record of radioactive materials or hazardous materials that have been disposed of or</p>

	used in this area.
L-Area Oil/Chemical Basin, 904-83G	The L-Area Oil and Chemical Basin (904-83G) is located in the southeastern portion of L Area, just outside the L-Area perimeter fence. The basin is 118-feet long by 79-feet wide. It was designed and constructed as an unlined seepage basin for the purpose of disposing of small volumes of wastes not appropriate for discharge to local streams, regular seepage basins, or the 200-Area waste management system. The basin was put in operation in 1961 and continued to receive waste liquids until 1979 even though the L Area was placed on standby status in 1967. Wastewater flowed into the basin from both a bermed concrete drainage pad located outside the basin perimeter fence and from an underground pipeline originating from Building 717-G (maintenance hot shop), 55-gallon drums, and tanker trucks. The waste liquids consisted of small volumes of oil on top of wastewater and solvents.
L-Area Reactor Seepage Basin, 904-64G	L-Reactor Seepage Basin (LRSB) (904-6G) is an unlined, L-shaped, earthen basin located in the south-central part of SRS and outside the perimeter fence south of L-Reactor. Basin dimensions are about 200-feet long on each side of the L-shape by 36-feet wide by 7-feet deep. In 1958, SRS began using the earthen LRSB to dispose of low-level radioactive purge water from the L-Reactor Disassembly Basin. The disassembly basin was used to store irradiated reactor fuel and target RODs prior to their shipment to the Separation Areas. Purge water was necessary to keep tritium concentrations in the disassembly basin at levels that ensured safe working conditions. The LRSB received purge water between 1958 and 1968 and between 1985 and 1988 when L-Reactor was placed on warm standby. There was no activity in the basin from 1968 to 1985. In 1993, L Reactor was placed in shutdown status and has not been restarted. During the period from 1985 to 1988, mixed-bed deionizers and sand filters intercepted the purge water before discharge into the LRSB.
L-Area Southern Groundwater, NBN	L-Reactor Area is located in the south-central portion of SRS. Acceptable past disposal practices associated with historical reactor operations have produced waste units within the area. These waste units have contaminated the area groundwater with operational wastes. The L-Area Southern Groundwater Operable Unit consists of groundwater impacted by the following waste units: Reactor Seepage Basin, Oil and Chemical Basin, Acid/Caustic Basin, and Hot Shop. Based on field characterization of these waste units, the contaminants of concern in the groundwater are VOCs and tritium.
Lower Three Runs Integrator Operable Unit	Integrator Operable Units (IOUs) are defined as surface water bodies (e.g., site streams and Savannah River) and associated wetlands, including the water, sediment, and related biota. The Savannah River Site has six IOUs that correspond to the respective watersheds.
M-Area Hazardous Waste Management Facility, Vadose Zone, 642-28G	The vadose zone (642-28G) is a media-specific operable unit of unsaturated soil above the A/M Area Groundwater Portion, (904-110G). The area geology is consolidated, unsorted sediments, and the vadose zone is approximately 120 to 140 feet in thickness. See the M-Area Hazardous Waste Management Facility: A/M Area Groundwater Portion, (904-110G)



	for a description of the groundwater portion.
M-Area Hazardous Waste Management Facility: A/M Area Groundwater Portion, 904- 110G	The A/M Area Groundwater operable unit (904-110G) is located in the A/M Area and northwest corner of the SRS. As a result of past waste disposal practices, the groundwater beneath A/M Area has been contaminated with organic solvents. Total plume size beneath the A/M Area is approximately 1600 acres and has not migrated beyond the SRS boundary. The primary source of this contamination was the M-Area Settling Basin, an 8-million gallon impoundment that received waste effluent from the M-Area manufacturing facilities from 1958 to July 1985. The settling area of the basin was estimated to be about 2 acres in size. An estimated 50% of all liquids that overflowed from the basin ran to Lost Lake and seeped into the ground in this area. When normal process discharges to the basin were discontinued in July 1958, this area quickly dried up. Various metal-degreasing solvents such as 1,1,1-trichloroethane, trichlorethylene, and tetrachloroethylene were used to clean metal components and organic phthalate compounds were used as components in the lubricants for metal-forming and extrusion processes. Another significant source of contamination was disposal practices from the A-014 Outfall to Tim's Branch. Over the course of operations (1950s to 1980's) approximately 370,000 gallons of process sewer waste was discharged per day through the outfall to Tim's Branch. It is estimated that 1.5 million pounds of solvents were released to the A-014 Outfall.
M-Area Settling Basin, 904-51G	The M-Area Hazardous Waste Management Facility (904-51G) is located near the Fuel and Target Fabrication Facility within M Area (300 Area). In 1954, manufacturing operations including aluminum forming and metal finishing started in M Area. Process wastewater from these operations was discharged to a nearby stream known as Tim's Branch. This wastewater contained slightly enriched uranium. The M-Area Basin was an unlined, man-made depression (i.e., surface impoundment) constructed in 1958 to settle out and contain uranium and other metals discharged from aluminum-forming and metal-finishing operations. Since surface water flowed from this basin, it is classified as a settling basin rather than a seepage basin. Dimensions at the top of the berm were 331 feet by 279 feet. The sides sloped inward at about a 20-degree angle giving bottom dimensions of approximately 280 feet by 230 feet. Depth of the basin, as constructed, was approximately 17 feet. The total original liquid capacity of the basin, allowing for a 2-foot freeboard, was less than 8,000,000 gallons. The settling area of the basin is estimated to be about 2 acres in size. An estimated 50% of all liquids that overflowed from the basin ran to Lost Lake and infiltrated the ground in this area. When normal process discharges to the basin were discontinued in July 1958, this area quickly dried up. Beginning in 1985, process wastes from M-Area were diverted from the M-Area HWMF to the Liquid Effluent Treatment Facility, a permitted wastewater treatment facility. The basin received process wastewater from M-Area production facilities from 1958 to July 1985. Although the concentration and quantity of chemicals in the process wastewater have

	<p>varied over time, the specific chemicals used in the process are well known. Various metal-degreasing solvents such as 1,1,1-trichloroethane, trichloroethylene, and tetrachloroethylene have been used to clean metal components and organic phthalate compounds have been used as components in the lubricants for metal-forming and extrusion processes.</p>
Met Lab/Carolina Bay, 904-110G	<p>The Met Lab/Carolina Bay (904-110G) is located in the eastern part of A-Area. It is located 1.4 miles away from the SRS boundary to the northwest of the facility. In all other directions, the SRS property boundary lies beyond a 4-mile radius of the unit. The closest surface water body is Tim's Branch, a tributary of Upper Three Runs, located approximately 4,400 feet east-southeast of the unit. The unit consists of the process sewer line that runs from the fence to the basin, the Met Lab, the drainage outfall to the Carolina Bay, and the Carolina Bay itself. The Met Lab Basin is a small, unlined, man-made surface impoundment approximately 5-feet deep. Dimensions at the top of the basin are approximately 60 feet by 120 feet. The basin sides slope inward at a nearly 25-degree angle (from the horizontal), giving the bottom dimensions of approximately 40 feet by 100 feet. The resulting volume capacity of the basin is approximately 27,600 cubic feet. The Carolina Bay is a marshy, oval-shaped, natural depression that covers approximately 6 acres and is adjoined to the Met Lab Basin via the drainage outfall.</p> <p>The Met Lab was constructed in 1956. It received effluent consisting primarily of noncontact cooling water and small quantities of laboratory rinse water (containing small quantities of metals, solvents, and caustics) from the Met Lab. Effluent was discharged continuously at approximately 1,000 gallons per day throughout the operating period of the basin, which was 1956 to 1985. During periods of heavy rainfall, wastewater and surface water runoff overflowed the Met Lab via a drainage outfall (A-007) and discharged to the adjacent Carolina Bay.</p> <p>The Carolina Bay also received process effluent from the A/M Area powerhouse (a maximum of 300,000 gallons per day) through Outfall A-008. Currently this powerhouse effluent is being collected and transported by tanker truck to another onsite powerhouse location for discharge. Effluent into the A-008 outfall from the A/M Area powerhouse consisted of stormwater overflow, powerhouse yard and floor drains effluent or discharge, and cooling water from pumps. All other effluent from the powerhouse is tanked and shipped to D Area for disposal. Stormwater runoff from the spare parts machinery storage area presently flows into the Carolina Bay at the A-009 Outfall. The unit received spent solvents used in operations such as trichloroethylene, 1,1,1-trichloroethane, and carbon tetrachloride, acetones, and cyanides from plating bath solutions. The release of hazardous waste from the Met Lab to the Met Lab was discontinued in 1983.</p>
Miscellaneous	<p>The MCB/MBP (731-5A and 731-4A) is located 1.5 miles south of A/M</p>

<p>Chemical Basin/Metals Burning Pit, 731-4A, -5A</p>	<p>Area operations (northwest portion of SRS), 0.25 miles from Road D, on either side of dirt Road C-1, 3 miles east of the SRS boundary. This unit is comprised of two separate areas in close proximity. The MCB is a 20-foot long by 20-foot wide by 1-foot deep borrow pit on the east side of Road C-1, and the MBP is approximately a 400-foot long by 400-foot wide irregularly shaped, cleared area on the west side of Road C-1. Records indicate no excavation despite the pit designation. Groundwater flow in the M-Area aquifer zone (water table) is from the southeast and west toward the unit where a localized groundwater "low" exists. In the underlying Lost Lake aquifer zone, groundwater flow is generally in a southerly direction.</p> <p>Miscellaneous Chemicals Basin (731-5A): Photographs indicate that the basin was used to receive liquid chemical waste from approximately 1956 to 1974. The basin was regraded in 1974 and allowed to revegetate. No records exist as to the creation or original purpose of the borrow pit. No records of specific materials disposed were kept, but its presumed use was for disposal of waste solvent and used oil. It is believed that partially full drums were emptied here and then discarded at the MBP.</p> <p>Metals Burning Pit (731-4A): The pit was in service from 1960 to 1974 and was used as a burning area for lithium-aluminum alloys, scrap, and cuttings from the A/M Area operations. Wastes were primarily contained in two discrete areas: one large pile and a series of small piles oriented in a semicircular arc. In 1974, waste piles were regraded with onsite soil, and the area was allowed to revegetate. The constituents of concern in the basin are volatile organic compounds, polychlorinated biphenyls, aluminum, and trace amounts of lithium and lead. For the pit, the constituents of concern are solvents and lithium and aluminum metals.</p>
<p>Miscellaneous Rubble Pile, 631-7G</p>	<p>The Miscellaneous Rubble Pile (631-7G) Site Evaluation Area (SEA) is in the central portion of the SRS and on the southwestern edge of N-Area. This SEA is approximately 6.5 miles east-southeast of the nearest SRS boundary and is in a relatively flat area that slopes gradually to the south and southeast. The majority of the SEA is lightly wooded with pine trees and underbrush. The central portion of the SEA (which surrounds the SRL Oil Test Site) contains grassy vegetation and a few trees and is approximately 100 feet long by 800 feet wide. It contains several large rubble piles, two piles of lumber, six empty corroded and broken 55-gallon drums, and 1 abandoned 55-gallon drum pallet. The SEA is bordered to the north by a dumpster storage area, and a railroad spur. The SEA is bordered to the west by ECODS (Early Construction and Operational Disposal Site) N-2 (NBN), to the east by the Central Shops Sludge Lagoon (080-24G) and the Central Shops Open Disposal Trench (NBN), and to the south by a vacant wooded area. There is a small wetland (approximately 10 acres) associated with Carolina Bay #126 adjacent to the southeastern corner and the SEA is within the Fourmile Branch Watershed. The area of the SEA was originally graded in the mid-1950s for use as a short-term storage area for portable sheds. The</p>

	<p>soil from grading the area was deposited on the eastern edge, where it remains today as one long pile (approximately 375 feet long), and one smaller pile (approximately 130 feet long). The site was used as a shed storage area from the mid-1950s until 1975. The SEA contains several rubble piles, and formerly contained others that have been removed. The portion of the SEA immediately north of the SRL Oil Test Site contained a large rubble pile with mostly asphalt covering an area of approximately 350 feet by 30 feet. This material was removed and disposed of in the SRS Sanitary Landfill in November 1982. A smaller rubble pile, which was located at the northwest corner of the SEA, was removed in April 1989. A review of the analytical results indicated that a small area (approximately 50 feet by 10 feet) associated with a rubble pile near the eastern edge of the SEA contained elevated concentrations of antimony, lead, and manganese. Another small area, once containing a single 55-gallon drum of paint waste was located near sample location MSRP-57, contained elevated concentrations of chromium, lead, PCB1254, and three pesticides.</p>
Mixed Waste Management Facility (Groundwater)	<p>The Burial Ground Complex (BGC) occupies approximately 195 acres in the central part of SRS between the F- and H-Separations Areas. Located in the northern portion of BGC is a 119-acre area known as the Low-Level Radioactive Waste Disposal Facility (LLRWDF) of which 58 acres are identified as the Mixed Waste Management Facility (MWMF). In December 1990, SRS completed the installation of a low-permeability clay cap over MWMF. In September 1999, SRS completed the installation of one of the first, State-approved geosynthetic caps over LLRWDF. The clay cap and the geosynthetic cap are designed to reduce rainwater infiltration to the buried waste and prevent the further spread of contamination to the groundwater. Both facilities are currently regulated for post-closure care under the SRS's Resource Conservation and Recovery Act (RCRA) Part B Permit.</p> <p>In the southern area, the Old Radioactive Waste Burial Ground (ORWBG) occupies about 76 acres. The ORWBG was the original disposal location and operated between 1952 and 1972 with a small quantity of waste being disposed in 1974. As an interim measure, a soil cover at least four feet thick was installed over ORWBG to reduce ground-level radiation levels, to reduce the amount of rainwater from coming in contact with the buried waste, and to reduce the spread of waste contamination to the groundwater. This action was completed in February 1998 with final closure currently being planned under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as agreed in the SRS Federal Facility Agreement.</p> <p>As a result of the past waste disposal at the BGC, the underlying groundwater has become contaminated with two primary materials: tritium, a radioactive isotope of hydrogen, and volatile organic compounds (principally trichloroethylene) found in solvents used for decontamination and degreasing. Four distinct BGC plumes are identified. The Northwest Plume</p>

	(NWP) and the Northeast Plume (NEP) originate from LLRWDF and MWMF and the Southeast Plume (SEP) and the Southwest Plume (SWP) originate from ORWBG.
Mixed Waste Management Facility (Including the RCRA-Regulated Portions of Low Level Radioactive Waste Disposal Facility [LLRWDF], 643-7E), 643-28E	The BGC occupies approximately 195 acres in the central part of SRS between F- and H- Separations Areas. The BGC consists of several adjacent facilities that were former disposal sites for hazardous and radioactive wastes and spent solvents generated from plant processes. The BGC is divided into a northern area (size 118 acres) and a southern area (size 76 acres). The southern region, Old Radioactive Waste Burial Ground (ORWBG) (643-E), began receiving radioactive wastes in 1952 and was filled in 1972. The ORWBG also contains twenty-two underground tanks (650-01E through -22E) once used for the storage of spent radioactive solvents. By 1972, all radioactive waste disposal activities had moved to the northern area. The northern area, LLRWDF (643-7E), began receiving waste in 1970. A portion of the LLRWDF, the MWMF, was closed in April 1991 utilizing an engineered clay cap in accordance with an SCDHEC-approved RCRA Closure Plan. The RCRA status of the MWMF was necessitated by the inadvertent disposal of radioactively contaminated hazardous waste in the trenches. It was later determined that another portion of the LLRWDF had received radioactively contaminated hazardous wastes and has been closed in accordance with a RCRA Closure Plan. This unit consists of the 58-acre MWMF and the LLRWDF, which is divided into six closure areas.
Old F-Area Seepage Basin, 904-49G	<p>The Old F-Area Seepage Basin (904-49G) is located northwest of the F-Area perimeter fence. The basin measures 200-feet long by 300-feet wide by 13-feet deep. It is split into two compartments by a berm 10-feet high and 5-feet wide. The Old F-Area Seepage Basin was the first basin constructed in F Area and received effluent from the F-Area canyon building from startup in November 1954 to mid-May 1955. During its use, the basin received a variety of wastewaters, including evaporator overheads, laundry wastewater, and an unknown amount of chemicals. Roughly 9 to 14-million gallons of wastewater were discharged to the basin. Between October 1969 and January 1970, 3,700 to 5,550 gallons of spent etching solution (nitric acid) containing 2,400 to 7,275 pounds of total uranium (U-238) were discharged to the basin.</p> <p>Constituents of concern in groundwater above Drinking Water Standards (DWS) include iron, manganese, gross alpha, nonvolatile beta, radium, tritium, barium, chromium, lead, nitrate, uranium, strontium-89/90, and iodine. Soil constituents of concern are mercury, cesium-137, strontium-90, plutonium-238 and -239, and uranium-234, -235, and -238. Mercury has been detected in the soil above detection limits but below extraction procedure toxicity limits. Trichloroethylene has been detected in groundwater monitoring wells above DWS but below background. Four groundwater monitoring wells have been installed around the basin and measure a variety of inorganic chemicals and radionuclides. Soil core samples were taken in 1986 and 1988 to measure chemical and radionuclide</p>

	constituents.
Old Radioactive Waste Burial Ground, 643-E	The Burial Ground Complex (BGC) occupies approximately 195 acres in the central part of SRS between the F- and H-Separations Areas. The BGC consists of several adjacent facilities that were or are disposal sites for hazardous and radioactive wastes and spent solvents generated from plant processes. The BGC is divided into a northern area (118 acres) and a southern area (76 acres). The southern region, the Old Radioactive Waste Burial Ground (ORWBG) (643-E) began receiving radioactive wastes in 1952 and was filled in 1972. The ORWBG also contains 22 underground tanks (650-01E through -22E) once used for the storage of spent radioactive solvents. By 1972, all radioactive waste disposal activities had moved to the northern area.
P-Area Bingham Pump Outage Pit, 643-4G	The Bingham Pump Outage Pit in P-Area is an unlined earthen pit located outside the perimeter fences. Repairs to primary and secondary reactor cooling systems were performed between 1957 and 1958. The outages of the cooling water systems occurred as a result of the modifications became known as the Bingham Pump Outages. The pits received low-level [less than 25 mR/hr] construction debris such as pipes, cables, ladders, drums, and boxes of miscellaneous hardware generated by the repairs. No pumps or liquids are buried at the pits. The pits were excavated to a depth of 13 feet, filled with approximately 9 feet of debris, and backfilled with approximately 4 feet of cover soil. It is conservatively estimated that, at the time of burial, the total amount of radioactivity buried in each reactor area was 1 curie. Approximately 70% of this activity is estimated to have been eliminated through radioactive decay since 1958. A ground-penetrating radar survey was performed to delineate pit boundaries. Measurements of surface radiation levels revealed no detectable surface radiation. A soil-gas survey also indicated very low concentrations of volatile organic compounds.
P-Area Burning/Rubble Pit, 131-P	The P-Area Burning/Rubble Pit (131-P) is located 0.5 miles west of P Area and just south of Road F. The 131-P Pit, which operated from 1951 to 1973, is approximately 210-feet long by 60-feet wide by 14-feet deep. During operation of the pit, spent organic materials of unknown use and origin, oil rags, paper, plastics, wood, telephone poles, cardboard, oil, and rubber were disposed of and periodically (monthly) burned. In 1973, the burning of wastes ceased at SRS. A layer of soil was placed over the pit debris, and the site was then filled to capacity with rubble such as concrete, paper, tile, asphalt, wood, wallboard, rubber, and nonreturnable empty drums. The pit reached capacity in 1978 and was closed and covered with soil to grade level. Early groundwater monitoring near the pit identified low concentrations of chlorinated and organic solvents, iron, and manganese in the groundwater. Concurrently, a soil-gas survey detected chlorinated solvents in the area soil. Other constituents of concern in soil include silver, lead, chromium, and toluene.
P-Area Reactor Seepage Basins, 904-61G, 904-	The three unlined P-Area Reactor Seepage Basins (904-61G, 904-62G, 904-63G) were placed in service in 1957. They received purge water from the P-Area Reactor. From 1970 to 1978, the basins were bypassed. In 1978

62G, 904-63G	discharge of process purge water to the basins was resumed until the reactor was placed in shutdown in 1991. There are seven water table monitoring wells surrounding the P-Area Reactor Seepage Basin. Sample results from these wells indicate concentrations of copper, lead, nitrate, strontium, and tritium in the groundwater. Soil-core analysis indicates the presence of cesium, cobalt, and strontium radionuclides. The activities associated with this unit have been divided into two portions; the groundwater and the source unit. Each portion will be addressed under a separate Record of Decision. The source unit is being addressed under the Plug-In Record of Decision that addressed the source for the C-, L-, K-, and P-Area Reactor Seepage Basins.
Pen Branch Integrator Operable Unit (Including Indian Grave Branch)	Integrator Operable Units (IOUs) are defined as surface water bodies (e.g., site streams and Savannah River) and associated wetlands, including the water, sediment, and related biota. The Savannah River Site has six IOUs that correspond to the respective watersheds.
R-Area Acid/Caustic Basin, 904-77G	<p>The R-Area Acid/Caustic Basin (904-77G) is located in an area forested with second growth pine about 600 feet south of R Area. The R-Area Acid/Caustic Basin, which operated between 1955 and 1964, is an unlined earthen basin 50-feet long by 50-feet wide by 7-feet deep. It received wastes from the R-Area Water Treatment Plant. The wastes consisted of dilute acid and caustic solutions, rinse water from ion exchange, steam condensate, overflow from sodium hydroxide storage tanks, and rainwater.</p> <p>There are no historical records on the quantities or characteristics of water purification wastewater discharged to the basin. SRS performed preliminary environmental studies of the basin in 1985. Data from the 1985 investigations was not collected or analyzed consistent with present sampling protocols and data quality requirements. However, these studies do suggest that the sediments in the basins may contain metals in concentrations slightly above typical SRS soil. In addition, these preliminary data indicate that metal concentrations in the sediments are not likely to be a threat to human health or the environment. The groundwater near the basin in R Area contains radium concentrations slightly higher than typical SRS background concentrations. Monitoring of four groundwater wells continues annually.</p>
R-Area Bingham Pump Outage Pits, 643-8G, -9G, -10G	The Bingham Pump Outage Pits in R-Area are unlined earthen pits located outside the perimeter fences. Repairs to primary and secondary reactor cooling systems were performed between 1957 and 1958. The outages of the cooling water systems occurred as a result of the modifications became known as the Bingham Pump Outages. The pits received low-level (less than 25 millirem/hour) construction debris such as pipes, cables, ladders, drums, and boxes of miscellaneous hardware generated by the repairs. No pumps or liquids are buried at the pits. The pits were excavated to a depth of 13 feet, filled with approximately 9 feet of debris, and backfilled with approximately 4 feet of cover soil. It is conservatively estimated that at the time of burial, the total amount of radioactivity buried in each reactor area was 1 curie. Approximately 70% of this activity is estimated to have been

	<p>eliminated through radioactive decay since 1958. A ground penetrating radar survey was performed to delineate pit boundaries. Measurements of the surface radiation levels measured no detectable surface radiation. A soil-gas survey indicated very low concentrations of volatile organic compounds.</p> <p>R-Area Unknown Pits #1, #2, #3 (RUNK-1, RUNK-2, and RUNK-3) are also included in this operable unit. See separate R-Area Unknown Pits #1, #2, #3 waste site descriptions.</p>
R-Area Burning/Rubble Pits, 131-R, -1R and Rubble Pile, 631-25G	<p>The R-Area Burning/Rubble Pits (131-R and 131-1R) are located southeast of R Area, south of the junction of Roads G and G-1 in a small ridge above Pond 4.</p> <p>The 131-R pit is roughly 238-feet long by 21-feet wide by 10-feet deep, and the 131-1R pit is 236-feet long by 33-feet wide by 10-feet deep. The burning/rubble pits operated from 1951 to 1973. During operation of the pits, organic materials of unknown use and origin, rags, paper, plastics, wood, telephone poles, cardboard, oil, and rubber were disposed and periodically (monthly) burned. In 1973, the burning of wastes ceased at SRS. A layer of soil was placed over the pit debris, and the unit then was filled to capacity with rubble such as concrete, paper, tile, asphalt, wood, wallboard, rubber, and non-returnable empty drums. The 131-R pit reached capacity in 1978, its use was terminated, and the pit was covered with soil to grade level. The other pit, 131-1R, remains unlined and uncovered.</p> <p>Rubble Pile, 631-25G contained railroad ties, empty drums, cans, buckets, and inert materials. A search of the records did not reveal any history of disposal of hazardous constituents. However, confirmatory sampling indicated the presence of chlorinated solvents and mercury. In addition, the depth to groundwater is shallow beneath this unit.</p>
R-Area Reactor Seepage Basins, 904-57G, -58G, -59G, -60G, -103G, -104G, and 108-4R Overflow Basin	<p>The R-Area Reactor Seepage Basins (904-57G, -58G, -59G, -60G, -103G, and -104G) are located next to the inactive R Reactor in the central part of SRS. The basins received radioactively contaminated purge water from the R-Reactor Disassembly Basin. In 1957, an experimental fuel element failed, resulting in the release of strontium and cesium to the basins. Basin 1 was deactivated and backfilled, and basins 2 through 5 were placed in operation. In 1960, basins 2 through 5 were deactivated, backfilled, treated with herbicide, and covered with asphalt. In addition, a clay cap and dike were placed over basin 1 and the north section of basin 3. In 1964, basin 6 was deactivated; in 1977, it was backfilled and covered with asphalt. Preliminary investigations indicate radiological contamination along with minor cadmium and lead concentrations in and around basins and along an abandoned construction sewer line that was breached during the installation of basins.</p> <p>The Overflow Basin (108-4R) is located approximately 250 feet southwest of the 105 R-Reactor Building inside R Area. The basin dimensions are</p>



	<p>approximately 60-feet long by 60-feet wide by 13-feet deep. The basin was used between 1953 and 1964 for collecting diesel fuel from the incidental overflow of adjacent storage tanks. Based on its previous use, the basin was identified for unit screening to determine if constituents were present in the basin. The investigation revealed that no constituents of concern existed at the unit.</p>
R-Area Unknown Pits #1, #2, #3, NBN	<p>The R-Area Unknown Pits #1, #2, #3 (RUNK-1, RUNK-2, and RUNK-3) were unknown pits located outside the perimeter fences near the R-Area Bingham Pump Outage Pits, 643-8G, -9G, -10G. Repairs to primary and secondary reactor cooling systems were performed between 1957 and 1958 during an outage of the cooling water systems. The 643-8G, -9G, -10G pits received low-level (less than 25 millirem/hour) construction debris such as pipes, cables, ladders, drums, and boxes of miscellaneous hardware generated by the repairs.</p> <p>Historical aerial photographs indicate RUNK-2 predates the R-BPOP that shows it was in existence as early as 1953. Construction debris has been verified in RUNK-2 based on surveys and soil sampling in the pit. Historical photographs indicate indicates RUNK-2 was closed in 1956. RUNK-1 and RUNK-3 were discovered in 1993 during a survey of the area. The survey indicated that these areas had been previously disturbed but their history is unknown. Magnetic surveys of these two RUNKs indicated they do not contain metallic debris, and additionally, no metallic or non-metallic debris was encountered during soil sampling.</p> <p>R-Area Unknown Pits #1, #2, #3 (RUNK-1, RUNK-2, and RUNK-3) are included in the R-Area Bingham Pump Outage Pits, 643-8G, -9G, -10G operable unit. See separate R-Area Bingham Pump Outage Pits, 643-8G, -9G, -10G waste site descriptions.</p>
Road A Chemical Basin, 904-111G	<p>The Road A Chemical Basin (904-111G) is approximately one-half mile southwest of the intersection of Road A (SC Highway 125) and Road 6, 4 miles east of the SRS boundary. The original basin dimensions were 100-feet long by 175-feet wide by 10-feet deep. The history of waste disposal in the basin, the dates of operation, and the nature and quantities of materials disposed were not recorded. The basin was backfilled in 1973, and an area of 400-feet by 400-feet was regraded. The Environmental Information Document, written in 1987, indicates the contents of the basin consisted of miscellaneous radioactive and chemical aqueous wastes.</p>
Sandblast Area, CMD-002, NBN	<p>The Sandblast Area, CMD-002, (NBN) Site Evaluation Area (SEA) is in the western portion of the SRS, in the central part of the D-Area, and surrounding Building 420-D. The SEA is approximately 1.5 miles east of the nearest SRS boundary. The D-Area was a highly industrialized area that maintained a high level of activity during previous years. The western portion of the area has served as the central utility complex for the entire SRS, and the eastern portion contained the "heavy water" production facilities, which provided moderator and coolant water for use in nuclear</p>

	<p>reactors at SRS. This SEA encompasses the perimeter of the Building 420-D facility, which was associated with the heavy water production facilities and is no longer in operation. The SEA is in a relatively flat area that slopes gradually to the southwest. Approximately half of the SEA is covered with grassy vegetation and the remainder is covered with concrete, asphalt, gravel, or surface-mounted equipment. The SEA is approximately 205 feet long by 165 feet wide and contains no stained soil, stressed vegetation, or other visual indications of contamination. There are extensive wetlands to the south and southwest of D-Area associated with Beaver Dam Creek, which flows to the Savannah River. These wetlands are approximately 1200 feet southeast of the SEA at their closest point. The SEA is within the Savannah River Swamp Drainage Watershed. The 420-D facility was completely shut down in 1998. It is believed that the immediate perimeter area around Building 420-D was used for the sandblasting of various ferrous, non-radioactive process and structural components during construction of the facility. Although no site-specific records are available relative to this activity, ferrous, non-radioactive objects were routinely sandblasted using black diamond sand, which is an amorphous mixture of iron, aluminum, and calcium silicates and/or oxides. After sandblasting activities were completed, it was common practice for the material from the sandblasting operation to be recovered and sent to the SRS Sanitary Landfill (Non-Radioactive Waste Disposal Facility, 740-G), with a small amount of residue remaining in-place. The major constituents associated with sandblast operations that are expected to be present at this SEA are lead and chromium.</p>
Sandblast Area, CMM-001, NBN	<p>The Construction Sandblast Area CMM-001 (NBN) is a Site Evaluation Area (SEA) where sandblasting took place on six aboveground storage tanks during a repainting project in 1989. This SEA is in the northwestern portion of the SRS and in the southwestern portion of the M-Area, and is approximately 0.75 miles south of the nearest SRS boundary. The SEA is bordered to the north by Building 341-1M and to the east by a paved road. The SEA is in a relatively flat area that slopes gradually to the south and is approximately 500 feet long by 200 feet wide. It also contains six large aboveground storage tanks. Only the northern half of the area within the SEA was actually impacted by sandblasting activities. The area of the SEA around the tanks is covered with grassy vegetation and gravel. The southern portion of the SEA is covered with grassy vegetation. The SEA contains no stained soil or stressed vegetation and the southern portion contains several large rubble piles. Grading activities in an adjacent area in the mid-1980s created these piles of soil. The other rubble piles are more recent, comprised mostly of concrete and construction debris, and were left there by various construction contractors. The SEA is within the Savannah River Swamp Drainage Watershed. No constituents of concern were present at this SEA.</p>
Sandblast Area, CMM-008, NBN	<p>The Sandblast Area CMM-008 (NBN) is a Site Evaluation Area (SEA) located in the northern portion of the Savannah River Site and in the M-Area. The SEA is located in a relatively flat area, covered with grassy</p>

	<p>vegetation, and is approximately 90x100 feet. It contains no stressed vegetation or other indications of contamination. The area is bordered to the north by Building 704-M, to the east and south by Building 313-M, and to the west by Building 730-M. The SEA is located in the Upper Three Runs Watershed. Details on the dates of operation and materials sandblasted are unknown. Similar areas at the SRS were used to remove paint and corrosion from large metal objects such as structural steel and large diameter pipe using black diamond sand. Black diamond sand is an amorphous mixture of primarily iron, aluminum, and calcium silicates and/or oxides. There are no records of hazardous waste or hazardous materials being deposited at this SEA.</p>
Sanitary Landfill Groundwater, 740-G	<p>The Sanitary Landfill Groundwater is located approximately 0.25 mile south of B Area, west of Road C and approximately 0.5 mile north of the Upper Three Runs Creek. The Sanitary Landfill is an approximately 70-acre site. It was opened in 1974 as a 32-acre site and received solid waste from a variety of sources, including site construction areas, offices, shops, and cafeterias. In 1987, as the Main Section reached its capacity, a 16-acre Northern Expansion and a 22-acre Southern Expansion were permitted and the Southern Expansion began receiving waste. During 1993, the Southern Expansion reached capacity. The Northern Expansion opened and began receiving solid waste in July 1993. Waste receipts ceased in 1997 when the Three Rivers Landfill began operation. During the course of its operation, the Sanitary Landfill's main and southern sections were suspected to have received small quantities of rags and wipes used with F-listed solvents. In 1988, the Sanitary Landfill (main and southern sections) became a subject of a RCRA Facility Investigation and was designated a RCRA solid waste management unit due to the recurring evidence of RCRA hazardous constituents in the groundwater beneath the site.</p>
Sanitary Landfill, 740-G	<p>The Sanitary Landfill is located approximately 0.25 mile south of B Area, west of Road C, and approximately 0.5 mile north of the Upper Three Runs Creek. The Sanitary Landfill is an approximately 70-acre site. It was opened in 1974 as a 32-acre site and received solid waste from a variety of sources, including site construction areas, offices, shops, and a cafeteria. In 1987, as the Main Section reached its capacity, a 16-acre Northern Expansion and a 22-acre Southern Expansion were permitted and the Southern Expansion began receiving waste. During 1993, the Southern Expansion reached capacity. The Northern Expansion opened and began receiving solid waste in July 1993. Waste receipts ceased in 1997 when the Three Rivers Landfill began operation. During the course of its operation, the Sanitary Landfill's main and southern sections were suspected to have received small quantities of rags and wipes used with F-listed solvents. In 1988, the Sanitary Landfill (main and southern sections) became the subject of a RCRA Facility Investigation and was designated a RCRA solid waste management unit due to recurring evidence of RCRA hazardous constituents in the groundwater beneath the site.</p>
Savannah River	<p>Integrator Operable Units (IOUs) are defined as surface water bodies (e.g.,</p>

Integrator Operable Unit and Savannah River Floodplain Swamp Integrator Operable Unit	site streams and Savannah River) and associated wetlands, including the water, sediment, and related biota. The Savannah River Site has six IOUs that correspond to the respective watersheds.
Silverton Road Waste Site, 731-3A	The Silverton Road Waste Site is 1.5 miles west-southwest of A/M Area. The unit is approximately 750-feet long by 600-feet wide by 6-feet deep. The unit was an open pit excavated prior to construction of SRS. The pit was probably a disposal site for domestic and community waste. During and after the construction of SRS, the pit and surrounding area were used for the disposal of construction debris such as metal shavings, drums, and storage tanks until its use was discontinued in 1974. Investigations revealed the presence of contaminants in the soil. However, no contaminants migrated into the groundwater. Consequently, a remedy was selected that consists of Institutional Controls coupled with groundwater sampling.
Spill of < 1/2 Lb. Mercury in Building 232-H, NBN	The Spill of Less Than One-Half Pound of Mercury in Building 232-H (NBN) Site Evaluation Area (SEA) was discovered during the removal of asphalt outside Building 232-H. All suspect asphalt and underlying soil were removed until no mercury was observed. Confirmatory samples were taken and the results indicated that no mercury remained. This SEA is located within the H-Area of SRS, which is approximately seven miles from the closest SRS boundary and the actual spill area encompasses a small exterior area adjacent to the west side of Building 232-H. The entire area around Building 232-H is highly industrialized, essentially no vegetative surface cover is present, and is located within the Upper Three Runs watershed. The chemical of concern relative to this SEA was mercury.
Spill on 03/08/78 of Unknown Retention Basin Pipe in H-Area Seepage Basin	The Spill on 03/08/78 of Unknown Retention Basin Pipe in the H-Area Seepage Basin Site Evaluation Area (SEA) has been determined to be in a larger waste unit, the Warner's Pond (685-23G) Operable Unit. Refer to the Warner's Pond (685-23G) Operable Unit for the description.
Spill on 04/25/87 of 15 Gallons of Water-RAD, NBN	The Spill on 4/25/87 of 15 Gallons of Water-Rad (NBN) Site Evaluation Area (SEA) is the result of an overflow of domestic water from an eyewash station located inside of the Building 340-M. The spilled water could have presented a threat to the environment if contaminants present in the Building 340-M were mobilized with the water and transported out of the building. The spilled water inside of the building was cleaned up and processed through the water treatment facility that is housed in the same building where the spill occurred. The spill originated within the Building 340-M (located in the northern portion of the Savannah River Site) and overflowed onto the ground immediately south of the building. The SEA is in an area that is relatively flat and slopes gradually to the southwest. The ground immediately south of the building is covered with concrete and grassy vegetation, consistent with the office and industrial area use. Building 340-

	<p>M is bordered to the north by a grassy area and a sidewalk, to the south by a concrete pad area, to the east by the Building 320-M, and to the west by the Building 322-M. The size of the soil area covered by the spill was not documented and there is no stressed vegetation or other indications of contamination. The SEA is located in the Savannah River Flood Plain Swamp Watershed. The nature of the spilled material at the SEA does not warrant consideration as a contaminant of concern.</p>
Spill on 05/01/56 of Unknown Retention Basin Pipe Leak, NBN	<p>The Spill on 05/01/56 of Unknown of Retention Basin Pipe Leak (NBN) Site Evaluation Area (SEA) has been determined to be located within the boundary of a larger waste unit, the H-Area Retention Basin, (281-3H). Refer to the H-Area Retention Basin, (281-3H) for the description.</p>
Spill on 06/28/84 of 100 Gallons of Chilled Water	<p>The Spill on 6/28/84 of 100 Gallons of Chilled Water (NBN) Site Evaluation Area (SEA) is a result of water (condensate) being released from an HVAC system used to cool the Building 313-M. The system is located on the south side of the building. A site walkdown with the M-Area Custodian revealed that the source of the water was not from chiller water, since the HVAC unit cooling the Building 313-M is a compressed gas system. The water would have to come from condensate off of the unit, which would not contain hazardous substances. SRS employees responded by applying chlorine to the area. This action is typical of spills from water cooled units, because of the biological hazards that may be present in recirculated water systems (<i>Legionella</i>, etc). This SEA is located in the northern portion of the Savannah River Site in the M-Area. The nearest plant boundary is located approximately 0.75 miles away. The area is relatively flat and slopes slightly to the south, covered with sand and gravel and there is no stressed vegetation. The SEA is located in the Savannah River Flood Plain Swamp Watershed. The size of the area covered by the spill was not documented and was determined later that no contaminants were present at this SEA.</p>
SRL Oil Test Site, 080-16G	<p>The SRL Oil Test Site (080-16G) is located approximately 2,000 feet east of the intersection of Roads 3 and 5. Separated from the Central Shops complex by C-railroad spur line, the unit is subdivided into three distinct areas of concern: the SRL Oil Test Site, the Rubble Disposal Site, and Petroleum-Contaminated Soil Temporary Storage Area. The SRL Oil Test Site was developed in 1975 as a location from which to evaluate the ability of native microorganisms to biodegrade petroleum hydrocarbons. No initial characterization was conducted on waste oils applied to the soil. In 1975, 220 gallons of used machine cutting oil were applied to 12 test plots, each measuring 12-feet wide by 35-feet long, resulting in an applied oil concentration of 400 gallons per square foot. In 1976, varying amounts of fertilizer were applied to each of the plots, and 824 gallons of used hydraulic fluid and 1,100 gallons of used paint thinner were randomly applied to two additional plots (each 10-feet wide by 230-feet long). There are no existing records of origin, history, or sampling analysis of these plots. Oil test plots were sampled immediately after application, 1 month after application, then every 3 months for two years. Results indicated that after 2 years, approximately 50% of applied oil was lost from the soil profile through</p>

	biodegradation and volatilization. The SRL Oil Test Site has been inactive since 1977.
SRL Seepage Basins, 904-53G1, 904-53G2, 904-54G, 904-55G	The SRL Seepage Basins (904-53G1, -53G2, -54G, and -55G) are located in the southern part of A-Area. The basins are rectangular in shape and were constructed by removing soil from within the basins to form surrounding dikes. The basins were used to dispose of low-level radioactive liquid waste generated in the laboratories located in Buildings 735-A and 773-A. The basins are connected to the underground waste tanks by a process sewer line constructed of 10-inch diameter vitrified clay at a depth of approximately 10 feet. The process sewer line is about 950-feet long. The first two basins were placed into operation in 1954, and Basins 3 and 4 were added in 1958 and 1960, respectively. The basins were removed from service in October 1982. Pipes in the 904-A trench, which tied into the low-level drains in these laboratories, transferred the waste to one of four 776 cubic foot capacity underground tanks located in Building 776-A. When a tank accumulated about 706 cubic feet of waste, a grab sample was taken for analysis, and another of the tanks was valved on-line. Wastewater not exceeding 100 d/m/ml alpha and/or 50 d/m/ml beta-gamma was discharged to the basins. Waste exceeding the standards was sent by tank trailer to the 200 F-Area Separations Facility for disposal. During the 28-year loading history, approximately 4,600,000 cubic feet of water was discharged to the basins. COCs for the basins are radionuclides (uranium, thorium, radium, strontium, manganese, potassium, curium, cobalt, cesium, plutonium, and americium), organic chemicals (phthalates, acetone, methyl isobutyl ketone, dichlorodifluoromethane, methyl chloride, and toluene), and inorganic chemicals (ammonia, nitrogen, arsenic, barium, cadmium, chromium, copper, cyanide, fluoride, lead, mercury, nickel, selenium, silver, and zinc).
Steel Creek Integrator Operable Unit	Integrator Operable Units (IOUs) are defined as surface water bodies (e.g., site streams and Savannah River) and associated wetlands, including the water, sediment, and related biota. The Savannah River Site has six IOUs that correspond to the respective watersheds.
TNX Operable Unit (Old Seepage Basin 904-076G, New Seepage Basin 904-102G, Burying Ground, 643-5G and Groundwater 082-G	The Old TNX Seepage Basin (904-076G) was a liquid waste disposal basin associated with the TNX pilot-scale test facility situated in the southwestern portion of SRS. The basin was constructed in two parts: a settling section and a larger main section. The two collective sections are approximately 0.25 acre. The sections are rectangular in shape and have surface areas of 880 and 9,375 square feet. Each section is approximately 10-feet deep. The walls slope outward at a 56-degree angle. The basin was operated from 1958 to 1980. During the 22-year operating period, overflow from the basin resulted in the creation of an outfall delta approximately 100-feet wide inside the eastern side of the Savannah River Swamp. The Old TNX Seepage Basin received a number of chemicals including inorganic salts, low-level radionuclides, and organic solvents. Except for mercury, the exact quantity of waste involved is unknown. In 1981, the west wall of the basin was breached to drain the impounded liquids to the nearby swamplands, and the basin was backfilled with sand and clay and then capped with clay. A

	<p>portion of the cap was revegetated, and the remainder was covered with asphalt.</p> <p>The New TNX Seepage Basin (904-102G) is located across River Road from the TNX process area, about 2,000 feet east of the Savannah River. The basin consists of two sections: seepage (roughly 60 feet by 250 feet) and inlet (about 50 feet by 75 feet), with a total volume of approximately 1 million gallons. Basin overflow is discharged to a low-lying area adjacent to the basin. The basin was placed in service in 1980 and received process waste flows from pilot-scale simulations conducted at TNX in support of the Defense Waste Processing Facility and Separations Areas. Batch discharges of process water were neutralized for pH prior to release to the basin. There are no records of hazardous wastes or hazardous constituents disposed at the basin. Service was terminated in 1988, at which time influent to the basin was rerouted to the TNX Effluent Treatment Facility.</p> <p>The TNX Burying Ground (643-5G) is located in the TNX Area within the TNX facility fence. In 1953, an experimental evaporator containing approximately 1,300 pounds of uranyl nitrate exploded. The material contaminated as a result of the explosion was buried in four trenches 6- to 8-feet below surface level. The contaminated material included structural steel, tin, timber, drums, and rags. The waste trenches were rediscovered in 1980 during construction of buildings. Most of the contaminated material was removed in 1982 and 1983. Five areas of known contamination and one suspected area remain. These areas are under buildings or in locations where use of excavation equipment is restricted. An estimated 60 pounds of uranyl nitrate remains in these unexcavated areas.</p> <p>In August 1996, three metal drums were discovered in an area adjacent to the TNX Burying Ground. This was referred to as the New Suspect Area. One drum contained job control wastes such as incandescent light bulbs, lead strips, adsorbent material, sample vials, and rubber gloves. The other drums contained soil-like materials. Radionuclides and metals were detected in each drum. The drums and adjacent soil were removed. Consequently, they no longer represent primary sources at this unit.</p> <p>Groundwater contamination in the TNX Area includes VOCs, nitrate, mercury, and gross alpha. These constituents exceed the Primary Drinking Water Standards (DWS). In September 1990, trichloroethylene (TCE) was detected in the groundwater at 4,800 parts per billion (or approximately 1,000 times the MCL). VOCs are the most widespread and fastest migrating groundwater constituents in the TNX Area. Mercury and gross alpha are present in elevated concentrations in one well out of 50 located in the TNX Area and do not appear to be migrating at this time. TCE has been detected at the seep line in the Savannah River Swamp where the groundwater plume outcrops. However, no constituents from the plume have been detected in</p>
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	<p>the Savannah River or any offsite groundwater. Currently no offsite risk is present from the groundwater contamination; however, an unacceptable risk to a theoretical onsite groundwater user has been documented in an interim risk assessment.</p>
<p>TNX Outfall Delta, Lower Discharge Gully and Swamp, NBN</p>	<p>The unit was originally part of the TNX Area Operable Unit (consisting of the New TNX Seepage Basin (904-102G), Old TNX Seepage Basin (904-076G), TNX Groundwater (082-G), and TNX Burying Ground (643-5G)). The units were separated in March 1998 to accommodate additional characterization activities within the inner swamp without impacting the remainder of the TNX Area Operable Unit.</p> <p>The unit is located on the western side of the TNX Area facility and extends 400 feet towards the Savannah River, which establishes the units' western boundary. The unit consists of bottomland forest and wetlands. Over much of the unit, the water table is less than 10 feet below land surface and may be above land surface during winter and spring. The area is within the 100-year floodplain and is subject to frequent flooding throughout the year.</p> <p>The Outfall Delta was formed when the wall of the Old TNX Seepage Basin was breached in 1981 releasing wastewater and sediment. Stormwater continues to be discharged to the Outfall Delta through a 24-inch concrete culvert located in the Discharge Gully.</p>
<p>Upper Three Runs Integrator Operable Unit (Including Tims Branch)</p>	<p>Integrator Operable Units (IOUs) are defined as surface water bodies (e.g., site streams and Savannah River) and associated wetlands, including the water, sediment, and related biota. The Savannah River Site has six IOUs that correspond to the respective watersheds.</p>
<p>Warner's Pond, 685-23G</p>	<p>Warner's Pond was constructed as a holding pond to receive segregated cooling water when it became contaminated. Contamination of the cooling water system in H-Area occurred in September 1956, May 1960, and November 1965. On these three occasions, contaminated cooling water entered the pond and was diverted or pumped to the 281-3H retention basin. Radionuclides associated with the releases were neither identified nor measured in the 1956 or 1960 releases. In 1965, fission products that covered approximately 300 acres were released. Pumping water to a diversion box that discharged to the H-Area Seepage Basins reduced radioactivity. After the 1965 incident, the dam was breached, the pond drained and backfilled with 2 feet of soil, and the low-level contamination remaining was coated with asphalt. After backfilling was completed, the maximum radiation through clean soil was 500 counts/minute beta-gamma.</p>
<p>West of SREL "Georgia Fields" Site, 631-19G</p>	<p>The West of SREL "Georgia Fields" Site is located in the southwest section of SRS, approximately 1 mile west of SC Highway 125 and 0.5 mile south of Upper Three Runs Creek. The unit is situated just west of the SREL research area. Debris located on the unit includes empty steel drums, buckets, piles of burlap, wood waste, wire, ladders, chain link fence parts, and miscellaneous household items. The unit was formerly used for live</p>



	mammal trapping and collection. No hazardous substances are known to have been disposed at the unit. No chemicals or preservatives were reported used in the collection, tagging, or tracking of biological specimens. Unit screening consisted of two soil-gas surveys and a radiation survey. Constituents detected include trans 1,2-dichloroethene, chloroform, methane, ethane, propane, ethylene, propanol, and oxylene. The radiation survey detected no radiological constituents.
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